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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,341	07/30/2001	Kyung Lak Lee	11356-P66922US0	9154

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EXAMINER

CHAU, COREY P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/916,341

Applicant(s)

LEE, KYUNG LAK

Examiner

Corey P Chau

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 2, 8, 11, and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 1 recites the limitations "the left" in line 5 and "the right" in line 7.

Claim 2 recites the limitations "the height" in line 11 and "the speakers previously" in line 12.

Claim 8 recites the limitations "the left" in line 7; "the right" in line 8; "the frequency characteristic" in line 10; and "the vehicle type" in line 12.

Claim 11 recites the limitations "the left" in line 1; "the right" in line 2; "the tone" in line 6; "the front speaker arrangement" in line 7; "the vehicle type" in line 8; "the volume" in line 9; "said tone compensating unit" in lines 9-10; and "the right side" in line 11.

Claim 13 recites the limitations "the localization" in line 20; "the output signal" in line 22; "the signals reverberated" in line 25; and "the range of the low-frequency components" in lines 26.

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

Art Unit: 2644

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-10 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication No. 2003/0219137 to Fincham.

6. Regarding Claim 1, Fincham discloses a speaker configuration for stereo sound reproduction in a vehicle (i.e. a vehicle sound system), which has a plurality of speakers installed therein (Figs.1, 8, 9A-C, 11, and 13), said speaker configuration comprising: a first speaker provided in the left of a front central part of the vehicle (Figs. 1 and 9A-C) for receiving a right channel output; and a second speaker provided in the right of the front central part of the vehicle (Figs. 1 and 9A-C) for receiving a left channel output (i.e. the first speaker receives a channel output comprising the right channel and the second speaker receives a channel output comprising the left channel) (Figs. 3 and 4; page 4, paragraph 0058).

7. Regarding Claim 2, Fincham discloses said first speaker and said second speaker are arranged at a height within ± 50 cm from the of height of speakers previously installed in the vehicle (i.e. speakers are mounted at a sufficient height so as to have a relatively unobstructed pathway to the listeners' ears; therefore Fincham

anticipates the speaker arranged at a height comprising a height within ± 50 cm)(page 4, paragraph 0058). In addition, a speaker arranged at zero cm is within $+50$ cm.

Regarding Claim 3, Fincham discloses each of said first and second speakers is a full-range speaker for reproducing both of low-frequency and high-frequency sounds (Fig. 1).

8. Regarding Claim 4, Fincham discloses each of said first and second speakers is a two-way speaker, which is separated into a low-frequency speaker and a high-frequency speaker (Figs. 8, 11, and 13).

9. Regarding Claim 5, Fincham discloses each of said first and second speakers is a coaxial speaker, which is separated into a low-frequency speaker and a high-frequency speaker, which are coaxially bound (Figs. 8, 11, and 13)..

10. Regarding Claim 6, Fincham discloses each of said first and second speakers is a high-frequency speaker (Figs. 8, 11, and 13).

11. All elements of Claim 7 are comprehended by Claim 1. Claim 7 is rejected for the reasons stated above apropos to Claim 1.

12. Regarding Claim 8, Fincham discloses a signal processor (i.e. sound processor) for stereo sound reproduction, in a vehicle (i.e. vehicle sound system) which has a plurality of speakers (Figs. 1, 8, 9A-C, 11, and 13) and a powered head unit installed therein (page 1, paragraph 0005; page 3, paragraph 0054), in use for a speaker configuration including a first speaker provided in the left of a front central part of the vehicle (Figs. 1 and 9A-C) for receiving a right channel output and a second speaker provided in the right of the front central part of the vehicle (Figs. 1 and 9A-C) for

receiving a left channel output (i.e. the first speaker receives a channel output comprising the right channel and the second speaker receives a channel output comprising the left channel) (Figs. 3 and 4; page 4, paragraph 0058), said signal processor (i.e. sound processor) comprising: an equalizer (Figs. 4 and 16) for compensating the frequency characteristics of a front left channel output and a front right channel output inputted from the powered head unit according to the front speaker configuration in the vehicle and a vehicle type (page 3, paragraphs 0054 and 0055; page 4, paragraphs 0060 and 0063; page 6, paragraph 0070; page 8, paragraph 0089; page 14, paragraphs 0128 and 0131) and distributing the left channel outputs as many as the front speakers for the left side and distributing the right channel outputs as many as the front speakers for the right side (Figs. 1, 8, 9A-C, 11, and 13).

13. Regarding Claim 9, Fincham discloses a low-frequency pass filter for passing low-frequency components of a rear left channel output and a rear right channel output inputted from the powered head unit while performing a heavy damping in frequency bands beyond the range of the low-frequency components (Fig. 11; page 8, paragraph 0086).

14. Regarding Claim 10, Fincham discloses the low-frequency pass filter passes low-frequency components while performing a heavy damping in frequency bands beyond the low-frequency range (page 7, paragraph 0080). Fincham does not expressly disclose a range of 80 to 1000 Hz, however it would have been obvious to one having ordinary skill in the art to provide any range that would to emphasize bass tones such as 80 to 1000 Hz (page 8, paragraph 0090).

15. Claim 20 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0219137 to Fincham in view U.S. Patent No 5617480 to Ballard et al. (hereafter Ballard).

18. Regarding Claim 11, Fincham discloses a signal processor for stereo sound reproduction, in a vehicle (i.e. vehicle sound system) which has a plurality of speakers and a non-powered head unit installed therein (Figs. 1, 8, 9A-C, 11, and 13), for a speaker configuration including a first speaker provided in the left of a front central part of the vehicle (Figs. 1 and 9A-C) for receiving a right channel signal; and a second speaker provided in the right of the front central part of the vehicle (Figs. 1 and 9A-C) for receiving a left channel signal (i.e. the first speaker receives a channel output comprising the right channel and the second speaker receives a channel output comprising the left channel) (Figs. 3 and 4; page 4, paragraph 0058), said signal processor comprising: an equalizer (Figs. 4 and 16) for compensating the tone of output signals from said earlier reflection processing unit according to the front speaker

arrangement in the vehicle and a vehicle type (page 3, paragraphs 0054 and 0055; page 4, paragraphs 0060 and 0063; page 6, paragraph 0070; page 8, paragraph 0089; page 14, paragraphs 0128 and 0131); and a first volume controller for controlling the volume of output signals from said tone compensating unit (Fig. 16; page 3, paragraph 0054; page 4, paragraph 0062; page 12, paragraph 0118; page 14, paragraph 0131), and distributing the left channel signal as many as the front speakers for the left side and distributing the right channel signal as many as the front speakers for the right side to output respective signals to amplifiers for front speakers (Figs. 1, 8, 9A-C, 11, and 13). Fincham does not expressly disclose an earlier reflection processing unit for adding earlier reflections to a left channel signal and a right channel signal inputted from the non-powered head unit. However it would have been obvious to one having ordinary skill in the art to provide such an earlier reflection and reverberation in order to have desired environmental effect as taught by Ballard. Ballard discloses adding/adjusting early reflection and reverberation by adjusting the delay icon (Fig. 4)

19. All elements of Claim 12 are comprehended by Claim 11. Claim 12 is rejected for the reasons state above apropos to Claim 11. In addition, a system that does not add earlier reflection, adds zero earlier reflection, therefore an earlier reflection processing unit adding zero earlier reflection.

20. Regarding Claim 13, Fincham as modified discloses a first delay unit (Ballard, Fig. 4) for delaying the left channel signal and the right channel signal inputted from the non-powered head unit for a certain period of time to remove the localization of a rear sound image; a later reverberation processing unit for adding later reverberations to the

output signals of the first delay unit (Ballard, Fig. 4; column 5, lines 51-67; column 9, lines 5-29); a first low-frequency pass filter for passing low frequency components of the signals reverberated from the later reverberation processing unit while performing a heavy damping in frequency bands beyond the range of the low-frequency components (F)(Figs. 3, 5, and 6); and a second volume controller for controlling the volume of the output signals from said first low-frequency pass filter to output the controlled signals to amplifiers for rear speakers (G)(Figs. 3, 5, and 6).

21. All elements of Claim 14 are comprehended by Claim 13. Claim 14 is rejected for the reasons state above apropos to Claim 13. In addition, a system that does not perform delays, delays a signal zero millisecond, therefore a delay unit delays a signal for a time period of zero.

22. All elements of Claim 15 are comprehended by Claim 13. Claim 15 is rejected for the reasons state above apropos to Claim 13. In addition, a system that does not perform later reverberation processes adds zero second, therefore a later reverberation process unit adding zero later reverberation.

23. All elements of Claim 16 are comprehended by Claim 13. Claim 16 is rejected for the reasons state above apropos to Claim 13.

24. Claim 17 is essentially similar to Claim 13 and is rejected to for the reasons stated above apropos to Claim 13. The GUI adds and/or adjusts delay, frequency, and gain to obtain desired audio effect.

25. All elements of Claim 18 are comprehended by Claim 17. Claim 18 is rejected for the reasons state above apropos to Claim 17. In addition, a system that does not

perform delays, delays a signal zero millisecond, therefore a delay unit delays a signal for a time period of zero.

26. All elements of Claim 19 are comprehended by Claim 17. Claim 19 is rejected for the reasons state above apropos to Claim 17.


Conclusion

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P Chau whose telephone number is (703)305-0683. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on (703)305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 20, 2004


FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER